

REMARKS

Applicants acknowledge the Examiner's indication that claims 4, 11 and 13-15 would be allowable if rewritten in independent form. At this time, Applicants decline to rewrite these claims in independent form.

In the Office Action, the Examiner:

rejected claims 1-2 and 5-6 under 35 USC § 102(b) as being anticipated by Bailey (U.S. Patent No. 6,009,709);

rejected claims 3 and 7 under 35 USC § 103(a) as being unpatentable over Bailey in view of Coleman et al. (U.S. Patent No. 6,484,500);

rejected claims 8-10 under 35 USC § 103(a) as being unpatentable over Bailey in view of Yanagisawa (JP Patent Publication No. 2000-249004); and

rejected claim 12 under 35 USC § 103(a) as being unpatentable over Bailey in view of Falleti (EP Patent No. 1 213 467).

In addition, in the Office Action, the Examiner indicated that Figure 3 should be labeled "Prior Art," and that paragraphs [0011] and [0014] of the specification should be amended to be consistent with amendments made to the claims in the Preliminary Amendment. Applicants have amended FIG. 3 and paragraphs [0011] and [0014] consistent with the Examiner's suggested amendments.

In the Office Action, the Examiner rejected claims 1-2 and 5-6 as being anticipated by Bailey. The Examiner alleges that Bailey discloses an EGR passage (56, 60) connecting an exhaust passage upstream of a turbine (42) to an intake passage (38) downstream of a compressor (46) for returning some of the exhaust gas of the exhaust passage to the intake passage, wherein if the exhaust gas is supplied to the turbine with the EGR valve closed, the turbocharger overruns beyond a maximum speed limit, and if the EGR valve is opened to return some of the exhaust gas to an intake passage side, the turbocharger rotates at lower speed than the maximum speed limit.

Applicants respectfully disagree. Bailey discloses the use of an EGR system in a high engine load, high engine speed condition, wherein in a first EGR

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AMENDMENTS TO THE DRAWINGS

Please replace Sheet 3/3, which includes FIG. 3, with the attached Replacement Sheet 3/3. FIG. 3 has been amended to include the label "PRIOR ART."

valve position, a portion of the exhaust gas is recirculated to the inlet manifold and in a second valve position, the EGR valve blocks the flow of recirculated gas to the inlet manifold and instead directs all of the exhaust gas to the turbocharger. In an EGR control scheme using pressure and engine speed, Bailey discloses that the EGR valve moves from the closed (sic, second) position into the first position when pressure exceeds the predetermined pressure range (i.e. a high load condition) and the engine speed exceeds a predetermined engine speed. [col. 6, lines 29-36]. The predetermined engine speed coincides with a maximum torque of the engine.

Bailey fails to disclose a capacity of the *turbocharger's turbine* which is set such that in a high speed and high load region of the engine operating state, if the exhaust gas is supplied to the turbine with the EGR valve closed, the *turbocharger* overruns beyond a maximum speed limit, and if the EGR valve is opened to return some of the exhaust gas to an intake passage side, the *turbocharger* rotates at lower speed than the maximum speed limit. Bailey's above-noted disclosure is directed toward the speed of the engine, not the speed of the *turbocharger*. Indeed, Bailey fails to disclose that the turbocharger ever overruns a maximum speed limit. Instead, Bailey discloses that "by diverting all of the exhaust gas into the turbine 42, the turbine efficiency remains high." [col. 5, lines 6-8]. This suggests that if all of the exhaust gas is supplied to the turbocharger turbine, that the turbine is not overrunning a maximum speed limit, as such an overrunning would reduce turbine efficiency. Thus, Bailey teaches against setting a capacity of the turbocharger's turbine such that if all the exhaust gas is supplied to the turbine, the turbocharger overruns beyond a maximum speed limit, as recited in claim 1. By contrast, in the present invention, by setting the turbine as claimed, the turbine capacity is decreased, and thereby it is possible to improve the response of the turbine by reducing the flow of the exhaust gas to the turbine. In other words, with 100% of the exhaust gas being supplied to the turbocharger in a high load, high speed condition, in the present invention, the turbine would overrun its maximum speed limit and would not be operating at a high efficiency.

Bailey is explicitly silent regarding the speed of the turbine, and at the

very least, implicitly teaches away from the present invention by stating that the turbine efficiency remains high by diverting all of the exhaust gas into the turbine, as discussed above. Bailey fails to disclose each and every element of claim 1, and therefore, Bailey fails to anticipate claim 1.

Claims 2 and 5-6 depend from claim 1 and contain additional recitations thereto. In particular, claim 5 recites, among other things, that the turbo-charged engine further includes a charge cooler for cooling intake air, which is provided in the intake passage and located at downstream side of a position to which the EGR passage is connected. The Examiner erroneously indicates that Bailey discloses a charge cooler located at a *downstream* side of a position to which the EGR passage is connected. In fact, Bailey discloses a charge cooler located at an upstream side of a position to which the EGR passage is connected (see FIG. 1). Unlike the present invention, the placement of the charge cooler (36) as disclosed by Bailey makes it impossible for the recirculated EGR gas to be cooled by the charge cooler. Thus, for at least all of the reasons discussed above, Bailey also fails to anticipate claims 2 and 5-6.

In the Office Action, the Examiner also rejected claims 3 and 7 as being unpatentable over Bailey in view of Coleman; claims 8-10 as being unpatentable over Bailey in view of Yanagisawa; and claim 12 as being unpatentable over Bailey in view of Falletti. Each of these claims depends, directly or indirectly, from claim 1.

With respect to claim 3, the Examiner concedes that Bailey fails to disclose a turbocharger having a high stage turbine and a low stage turbine. With respect to claim 7, the Examiner concedes that Bailey fails to disclose an EGR cooler being provided in the EGR passage downstream of the EGR valve. The Examiner indicates that Coleman teaches an emission control system having multiple turbochargers and an EGR cooler provided downstream of the EGR valve. Coleman fails to disclose setting a capacity of the turbine such that in a high speed, high load region of the engine operating state, if the EGR valve is closed, the turbocharger overruns beyond a maximum speed limit, as recited in claim 1. Thus, Coleman fails to supply the deficiencies of Bailey, and the combination of

Bailey in view of Coleman fails to render claims 3 or 7 unpatentable.

With respect to claims 8-10, the Examiner concedes that Bailer fails to disclose a check valve, the function and location of the check valve. The Examiner indicates that Yanagisawa teaches the use of a check valve provided in an EGR passage to allow a flow in only one direction, wherein the check valve is provided downstream of the EGR valve. However, Yanagisawa fails to disclose setting a capacity of the turbine such that in a high speed, high load region of the engine operating state, if the EGR valve is closed, the turbocharger overruns beyond a maximum speed limit, as recited in claim 1. Thus, Yanagisawa fails to supply the deficiency of Bailey, and the combination of Bailey in view of Yanagisawa fails to render claims 8-10 unpatentable.

With respect to claim 12, the Examiner concedes that Bailey fails to disclose that each part of the divided exhaust manifold being individually connected to the intake passage by an EGR passage. The Examiner indicates that Falleti teaches the parts of a divided exhaust manifold being individually connected to the intake passage by two more EGR passages. As with Coleman and Yanagisawa, Falleti fails to disclose setting a capacity of the turbocharger's turbine such that in a high speed, high load region of the engine operating state, if the EGR valve is closed, the turbocharger overruns beyond a maximum speed limit, as recited in claim 1. Thus, Falleti also fails to supply the deficiency of Bailey, and the combination of Bailey in view of Falleti fails to render claim 12 unpatentable.

Applicants submit that claim 1 is patentably distinguishable over Bailey either alone or in combination with Coleman, Yanagisawa or Falleti. Claims 2 and 5-6 are patentably distinguishable from Bailey and claims 3, 7, 8-10 and 12 are also patentably distinguishable over Bailey in combination with Coleman, Yanagisawa or Falleti for the reasons stated above, as well as by virtue of the additional limitations included therein. Accordingly, for at least these reasons, favorable reconsideration of these claims is requested.

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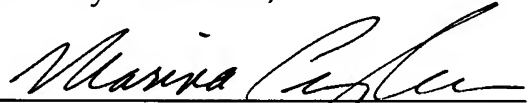
In view of the foregoing, it is respectfully submitted that pending claims 1-15 and the present application are in condition for allowance, and action to that effect is earnestly solicited. Applicants respectfully submit that the requested amendments do not add any new matter into the present application.

Should the Examiner have any questions regarding the present application, Applicants respectfully request that the Examiner contact Applicants' representative at the phone number listed below.

Although Applicants do not believe a fee is due with the submission of this Response, if it is deemed that a fee is required, please charge to Deposit Account 13-0235.

Respectfully submitted,

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